CHAPTER 2
Shipbuilding and Ship Conversion

TITLE XI GUARANTEES

Title XI of the Merchant Marine Act, 1936, as amended, established the Federal Ship Financing Guarantee Program. As originally enacted, Title XI authorized the Federal Government to insure private-sector loans or mortgages made to finance or refinance the construction or reconstruction of American-flag vessels. Title XI was amended in 1972 to provide direct Government guarantees of the underlying debt obligations, with the Government holding a mortgage on the equipment financed.

On November 30, 1993, the National Shipbuilding and Shipyard Conversion Act of 1993 (Shipbuilding Act) expanded the Title XI program by authorizing the Secretary of Transportation to guarantee obligations issued to finance the construction, reconstruction, or reconditioning of eligible export vessels. It also authorized guarantees for shipyard modernization and improvement.

The Shipbuilding Act established a National Shipbuilding Initiative (NSI) program to support the industrial base for national security objectives. The goal of NSI was to help re-establish the American shipbuilding industry as a self-sufficient internationally competitive industry. Title XI financing was one of the key elements of the NSI.

Under the Title XI program, the U.S. Government insures or guarantees full payment to the lender of the unpaid principal and interest of the obligation in the event of default by the vessel owners or general shipyard facility.

As of September 30, 2001, Title XI guarantees in force aggregate approximately $4.9 billion, covering 871 vessels and 89 individual shipowners.

During FY 2001, Congressional authority for the Title XI program had a cap of $12 billion, with $11.15 billion allocated to the Maritime Administration (MARAD) and $850 million authorized to guarantee the financing of fishing vessels and fisheries facilities by the National Oceanic and Atmospheric Administration. Title XI guarantees for eligible export vessels are limited to $3 billion.

In FY 2001, Title XI applications totaling approximately $730 million in loan guarantees were approved. The approved projects covered construction of 295 vessels. Vessels approved included one 2600-TEU (Twenty-foot Equivalent Unit) container carrier vessel, one enhanced Gorilla Class self-elevating mobile offshore drilling vessel, and one Orca Class roll on/roll off vessel. Projects also involved river barges, tank barges, and articulated tug/barge units.

On March 21, 2001, MARAD satisfied a demand for payment on the Government-guaranteed financing of four liftboats to be owned by Searex, Inc. The amount of the payoff was $78.1 million, including both principal and interest. MARAD recovered $15.7 million from Title XI-guaranteed obligations that were held in escrow and not disbursed. Additional recoveries will come from the sale of the financed assets.

MARITECH

The NSI also contained funds for industry-initiated research and development (R&D) projects under the MARITECH program.

MARITECH was a 5-year $220-million Federally funded program that provided matching Government funds to encourage the shipbuilding industry to direct and lead in the development and application of advanced technology to improve its competitiveness and to preserve its industrial base. The program was industry-led and jointly funded by Government and industry. Program administration was provided through the Defense Advanced Research Projects Agency (DARPA) of the Department of Defense in collaboration with MARAD.

MARITECH had both near-term and long-term objectives. In the near term, it assisted industry in penetrating the international marketplace with competitive ship designs, market strategies, and modern shipbuilding processes and procedures. In the long term, the program encouraged advanced ship and shipbuilding technology projects in promoting continuous product and process improvement in order to maintain and enlarge the U.S. share of the commercial and international market; this, in turn, was designed to ensure the availability of an experienced industrial base, which is vital to national security in times of crisis.

MARITECH projects awarded during FYs 1994-1998 covered a wide range of themes from the design of various types of small vessels to large oceangoing ships, shipyard technology, and advanced material technology. These projects were awarded to 24 companies and involved some 200 subcontractors located in 40 states, the District of Columbia, Puerto Rico, and nine foreign countries.

MARAD MARITECH Projects

Since 1994, DARPA and MARAD jointly selected a total of 65 projects valued at $357 million, of which 40 projects valued at $172 million were assigned to MARAD to administer. There has been no new or additional funding provided for new projects

since the end of FY 1998. However, several existing projects have been extended with follow-on work phases.

At the end of FY 2001, eight MARITECH projects were ongoing and were being administered by MARAD. Currently five projects ($20.7 million) should be phased out or concluded by the end of FY 02. These projects range from innovative design and marketing strategies of high-technology vessels to research in advanced manufacturing technology processes and procedures. Information on MARAD-administered projects is available on MARAD's web site (http://www.marad.dot.gov/nmrec/). From an index on that site, MARITECH project information files are available for review, including such information as project title, project consortium members, project objectives/overview, project status, and Government and private sector contacts.

National Shipbuilding Research Program-Advanced Shipbuilding Enterprise (NSRP-ASE)

Funding for MARITECH ended in fiscal year 1998. Recognizing the need to build on MARITECH's success, the industry worked with the Navy, DARPA, Coast Guard, and MARAD to develop a successor program called NSRP-ASE. This program, which has received congressional funding since FY 1999, is designed to manage and focus national shipbuilding research and development funding on technologies that will reduce the cost of warships to the U.S. Navy and will establish U.S. international competitiveness.

NATIONAL MARITIME RESOURCE AND EDUCATION CENTER (NMREC)

NMREC's principal missions are to promote elimination of unnecessary regulation, encourage development and use of consensus technical standards for the maritime industry, and support U.S. participation in both national and international standards-writing organizations. MARAD, through NMREC, works closely with national and international standards-developing organizations. These include the International Maritime Organization (IMO), the U.S. Coast Guard (USCG), the International Organization of Standardization (ISO), the American National Standards Institute (ANSI), and the American Society for Testing and Materials (ASTM). The goal is to assist in the adoption of consensus ship construction and quality standards.

In fulfilling its mission, MARAD serves as a member of the following organizations:

- U.S. Technical Advisory Group (USTAG) to the ISO
- Executive Control Board of the National Shipbuilding Research Program (NSRP)
- Government/Industry Advisory Board of the Gulf Coast Region Maritime

Technology Center

The Agency also has established the Marine Industry Standards Library under NMREC. Its purpose is to provide technical assistance to U.S. shipbuilders, ship repair facilities, and marine equipment suppliers in obtaining and using copies of domestic and international industry standards. A technical staff receives and investigates questions and assists the industry in the areas of standards and their applications to shipbuilding and the marine industry.

Another Agency role is to engage in outreach to the shipbuilding industry by providing information and market leads to assist in increasing international sales. In this latter connection, NMREC also sponsors conferences on these subjects:

- International standards
- International marketing
- Title XI loan guarantees
- Competitiveness bench marking of foreign versus U.S. shipyards
- Cruise ship construction in the U.S.
- Marine environmental protection
- Safety reform in the shipbuilding industry
- Challenges facing the ship repair industry
- Alternative fuels for ferries and other vessels

Since introduction of the shipyard revitalization plan in 1995, MARAD has acted as a facilitator for the shipbuilding, ship repair, and marine supply industry with the USCG to define areas for deregulation. In this connection, MARAD holds periodic meetings with USCG to maintain close cooperation in reducing regulations and supporting adoption of both national and international consensus standards.

NMREC offers support services and information in these areas:

- Marine Industry Standards Library
- Conferences and seminars
- MARAD's Guideline Specifications for Merchant Ship Construction
- MARITECH project information
- Title XI approved and pending lists, among other maritime-related activities

CAPITAL CONSTRUCTION FUND

The Capital Construction Fund (CCF) Program was established under the Merchant Marine Act of 1970. It assists operators in accumulating capital to build, acquire, and reconstruct vessels through the deferral of Federal income taxes on certain deposits, as defined in Section 607 of the Merchant Marine Act, 1936, as amended.

The CCF Program enables operators to build vessels for the U.S. foreign trade, Great Lakes, noncontiguous domestic trade

(e.g., between the West Coast and Hawaii), and the fisheries of the United States. It aids in the construction, reconstruction, or acquisition of a wide variety of vessels, including containerships, tankers, bulk carriers, tugs, barges, supply vessels, ferries, and passenger vessels. During calendar year 2000, $336.4 million was deposited into these accounts. Since the program was initiated in 1971, fundholders have deposited $7.4 billion in CCF accounts, and withdrawn $5.6 billion for the modernization and expansion of the U.S. merchant marine. As of September 30, 2001, a total of 150 companies were parties to CCF agreements. (See Figure 11.)

CONSTRUCTION RESERVE FUND

Like the CCF, the Construction Reserve Fund (CRF) encourages upgrading of the American-flag fleet. The program allows eligible parties to defer taxation of capital gains on the sale or other disposition of a vessel if net proceeds are placed in a CRF and reinvested in a new vessel within 3 years.

The CRF is used predominantly by owners of vessels operated in coastwise trades, the inland waterways, and other trades not eligible for the CCF program. Its benefits are not so broad as those of the CCF.

The number of companies with CRF balances increased from 21 to 22 during FY 2001 (See Figure 12.) The total monies on deposit increased to $44.3 million.

SHIPYARD ACTIVITY

During FY 2001, the major U.S. shipyards had a diverse orderbook, including both Navy and commercial construction. Navy shipbuilding included surface combatants, submarines, aircraft carriers, and auxiliary T-ships. The "T" designates Government-owned, civilian-manned ships which, in most instances, are assigned to the Navy's Military Sealift Command (MSC).

As of September 30, 2001, four T-ships were on order or under construction in three privately owned U.S. shipyards. (see Figure 8)

Figure 8: T-Ships on Order or Under Construction as of September 30, 2001

Shipyard	*Ship Class and Hull Number*	*Vesssel Name*	*Estimated Delivery Date*	*Approximate Contract (in $ millions)*
Halter Marine	T-AGS 65	MARY	12/23/2001	$53.6
Avondale	T-AKR 305	SEARS	01/06/2002	$210.0
Avondale	T-AKR 306	BRITTIN	08/12/2002	$227.0
National Steel	T-AKR 317	BENAVIDEZ	09/17/2002	$230.0
Totals	**4 Ships**			**$720.6**

Figure 9: FEDERAL SHIP FINANCING GUARANTEE (Title XI) Program Summary Principal Liability (Statutory Limit $11.15 Billion) September 30, 2001

	Contracts in Force	
	Vessels Covered	*Outstanding Amount (Millions)*
Liner	0	$0.00
Bulk	38	$768,070,014.80
Passenger	16	$1,266,553,120.00
Offshore Drilling Industries	32	$1,925,597,000.00
Inland	619	$183,638,000.00
Ocean Tugs and Barges	147	$421,846,440.00
Other	*3	$45,674,000.00
Shipyard	(No Ship Count)	$56,252,139.68
Power Generating Vessels	7	$226,995,000.00
Dredging Equipment	8	$26,059,418.85
Totals	**871**	**$4,920,685,133.33**

* Includes crane barges, pipelaying barges, floating drydock, swath dive support vessel, platform supply vessel.

As of September 30, 2001, there were 17 commercial oceangoing vessels larger than 1,000 gross tons on order from commercial shipyards in the United States. Orders for five of these vessels were facilitated by MARAD's Title XI program.

Shipbuilding orders included: two 6,299-deadweight ton/dwt (72,000 gross tons/gt) passenger cruise ships at Litton Ingalls; four 131,623-dwt (88,187 gt) crude carriers at Litton Avondale; two 27,397-dwt (60,884 gt) roll-on/roll-off (RO/RO)'s and four 185,000-dwt (106,988 gt) product tankers at National Steel; one 30,000-dwt (32,000 gt) containership at Kvaerner Philadelphia; two 11,120-dwt (8,500 gt) containerships at Bender Shipbuilding; 1,695-dwt. (1,592 gt) cruise ship at Atlantic Marine, Jacksonville; and two 13,000-dwt (37,237 gt) car/truck carriers at Halter Marine, Pascagoula.

Figure 13 shows the locations of the shipyards constructing oceangoing commercial vessels greater than 1,000 gross tons (gt) at the end of FY 2001.

In FY 2001, there were no deliveries of commercial oceangoing vessels 1,000 gt or greater. Figure 14 shows the commercial shipbuilding orderbook at the end of each calendar year since 1975, and as of September 30, 2001.

Shipyard Improvements

The U.S. shipbuilding and ship repair industry invested more than $338 million in FY 2001 to upgrade and expand facilities. During the last 10 years, the industry has invested more than $2.8 billion in capital improvement projects.

Much of this investment went to improve efficiency and competitiveness, including new shipyard layouts, new under-roof fabrication buildings, new pipe shops, new panel lines and the purchase of new cranes and transporters, building basins, floating drydocks, cranes, automated equipment and highly mechanized production systems. The emphasis has been on introducing modular techniques, fabrication of larger sub-assemblies, and pre-outfitting of ship components.

Information received by MARAD indicates that U.S. shipyards plan to spend approximately $279 million for improvements in FY 2002. The industry's capital investments since 1970 have totaled approximately $7.7 billion. Figure 15 shows capital investments in the shipbuilding and repair industry since 1985.

PUBLIC, PRIVATE, AND INTERGOVERNMENTAL PARTNERSHIPS FOR MARINE-RELATED ACTIVITIES

MARAD, in cooperation with the private sector and other Government agencies within and outside the Department of Transportation, continued to work on a series of shipbuilding-related projects:

- **Maritime Energy and Clean Emissions Program**—MARAD initiated a Maritime Energy and Clean Emissions program that seeks to investigate and demonstrate the potential for new technologies and fuels to improve marine power plant efficiency and reduce air emissions. The program actively seeks partnership with industry, other Federal agencies, and academia. Results of all investigations and demonstrations will be displayed on a related web site. The following headings give an update of recent project activities:

- **Comparative Testing of Natural Gas and Diesel Ferries**—Emission testing occurred on two sister ferries owned by the Hampton Roads Transit Authority in Norfolk, VA. One ferry operates with spark-ignited natural gas engines and the other a two-stroke diesel engine. Emissions, including nitrogen oxides (NOx), CO, CO2, HC, and Particulate Matter, were recorded over a series of operating conditions using a full test bench provided by West Virginia University and the Department of Energy. The Environmental Protection Agency provided a separate mobile source monitoring system, a self-contained, portable NOx measurement instrument capable of operating unattended for up to a week. The testing occurred in October, and MARAD is presently awaiting report documentation from the recording organizations.

- **Development of Marine Emission Measurement Protocols**—The wide variety of emission monitoring equipment used in the above comparative testing highlights the need, for scrutiny of which equipment and procedures are required for marine applications. Is a full bench test needed or can basic readings be measured at the stack with other parameters estimated? Which procedures will suit State, Federal, and international regulatory bodies? MARAD is working with the University of Delaware to sort through and publish recommendations for Maritime Emission Measurement Protocols.

- **Emission Reduction Technology Selection Framework**—There is also a wide variety of technology solutions for marine vessel operators to consider. Determining which technology should work the most cost-effectively for specific applications will be challenging. MARAD is again working with the University of Delaware to set up a framework that will assist the vessel operators in their technology selection endeavors.

- **San Francisco Ferry Bio-Diesel Project**—Bio-diesel is a fuel with diesel oil qualities, synthesized from vegetable oil or animal fat constituents. The fuel reduces most types of air emissions with the exception of Nitrogen Oxides (NOx). MARAD co-funded a demonstration project with the Water Transit Authority and Blue and Gold Fleet on the San Francisco Bay, to accomplish comparative performance and emission testing aboard an existing ferry. The testing has begun, and will include the addition of NOx-reduction technology (water injection in the inlet air) with bio-diesel and, separately, a low-sulfur diesel fuel.

- **Marine Engine Laboratory Tests**—MARAD is partnering with the Philadelphia Naval Warfare Center, Carderock, NAVSEA, in Philadelphia to test multiple emission-reduction technologies aboard a laboratory-based, two-stroke Detroit Diesel. The technologies will primarily be aimed at reducing NOx; however, other emission reductions will also be recorded. Additionally, the Department of Energy is providing funding to perform some expanded bio-diesel testing at the laboratory. Testing is expected to commence in the winter of 2002.

- **Marine Fuel Cell Load Testing**—Sure Power Corporation of Danbury, CT, is working with MARAD to determine how a 400 kW Fuel Cell Power Plant (Two 200 kW IFC Phosphoric Acid types) will respond to simulated marine load conditions. A dynamic flywheel system has been incorporated within the plant configuration to ensure rapid load following. Results will provide useful information toward future fuel cell power plant integration on ships and barges. Testing was scheduled for December 2001.

- **Sodium Borohydride Fuel Testing**—Hydrogen is perhaps the cleanest known fuel. However, hydrogen storage and safety characteristics present significant drawbacks in effective application. One solution may be sodium borohydride, which has the ability to carry an energy-dense quantity of hydrogen in a non-flammable, environmentally benign, liquid form. The liquid can be pumped over a catalyst to release the entrained hydrogen. MARAD is working with Seaworthy Systems of Essex, CT, to develop a conceptual marine application for this new fuel.

- **Car, Bus, Ferry In Situ Emission Comparison Study**—Phase I of this study has been awarded to Seaworthy Systems in San Francisco. The study will analyze how best to measure car and bus emissions, while in transit conditions, and compare these to ferries, which could replace them.
- **Maritime Energy and Emission Program Web site and Conferences**—All of the above ongoing and planned projects are relatively meaningless, unless MARAD can find methods of transmitting results to the industry. MARAD has scheduled a second related conference for the end of January 2002. A web-site is also under construction that will contain the results of all projects, studies, and known reference articles.

Figure 10: WORLDWIDE SHIP DELIVERIES—CALENDAR YEAR 2001

Tonnage in Thousands

	Total		*Tanker*		*Dry Bulk*		*Containership*		*Roll-on/Roll-off*		*Cruise/Passenger*		*Other**	
Construction	*Ship*	*Dwt*	*Ship*	*Dwt*	*Ship*	*Dwt*	*Ship*	*Dwt*	*Ship*	*Dwt*	*Ship*	*Dwt*	*Ship*	*Dwt*
JAPAN	327	19,058	68	4,846	205	12,914	31	1,104	12	97	—	—	11	97
KOREA (SOUTH)	185	16,265	64	7,921	49	4,469	67	3,765	4	86	—	—	1	24
CHINA	69	2,220	13	406	25	1,440	4	110	2	21	—	—	25	243
GERMANY	37	728	2	65	2	56	23	541	2	20	5	26	3	20
TAIWAN	12	695	—	—	3	347	9	348	—	—	—	—	—	—
POLAND	24	679	1	57	—	—	15	486	1	15	—	—	7	121
DENMARK	6	421	—	—	—	—	6	421	—	—	—	—	—	—
CROATIA	10	357	5	235	2	87	—	—	2	25	—	—	1	10
PHILIPPINES	6	294	—	—	6	294	—	—	—	—	—	—	—	—
NETHERLANDS	35	179	5	43	—	—	2	7	—	—	—	—	28	129
ROMANIA	17	162	4	51	3	44	—	—	—	—	—	—	10	67
UNITED STATES	2	143	1	142	—	—	—	—	—	—	1	1	—	—
SPAIN	5	131	2	119	—	—	—	—	1	3	—	—	2	9
TURKEY	17	121	11	63	—	—	2	21	—	—	—	—	4	37
ITALY	9	104	4	52	—	—	—	—	—	—	2	11	3	41
Top 15 Total	**761**	**41,557**	**180**	**14,000**	**295**	**19,651**	**159**	**6,803**	**24**	**267**	**8**	**38**	**95**	**798**
All Other	**39**	**354**	**4**	**66**	**—**	**—**	**6**	**89**	**3**	**41**	**7**	**55**	**19**	**103**
Grand Total	**800**	**41,911**	**184**	**14,066**	**295**	**19,651**	**165**	**6,892**	**27**	**308**	**15**	**93**	**114**	**901**

[1] Oceangoing self-propelled vessels of 1,000 gross tons and over.

* Breakbulk ships, partial containerships, refrigerated cargo ships, and specialized cargo ships.

Source: Lloyd's Maritime Information Services

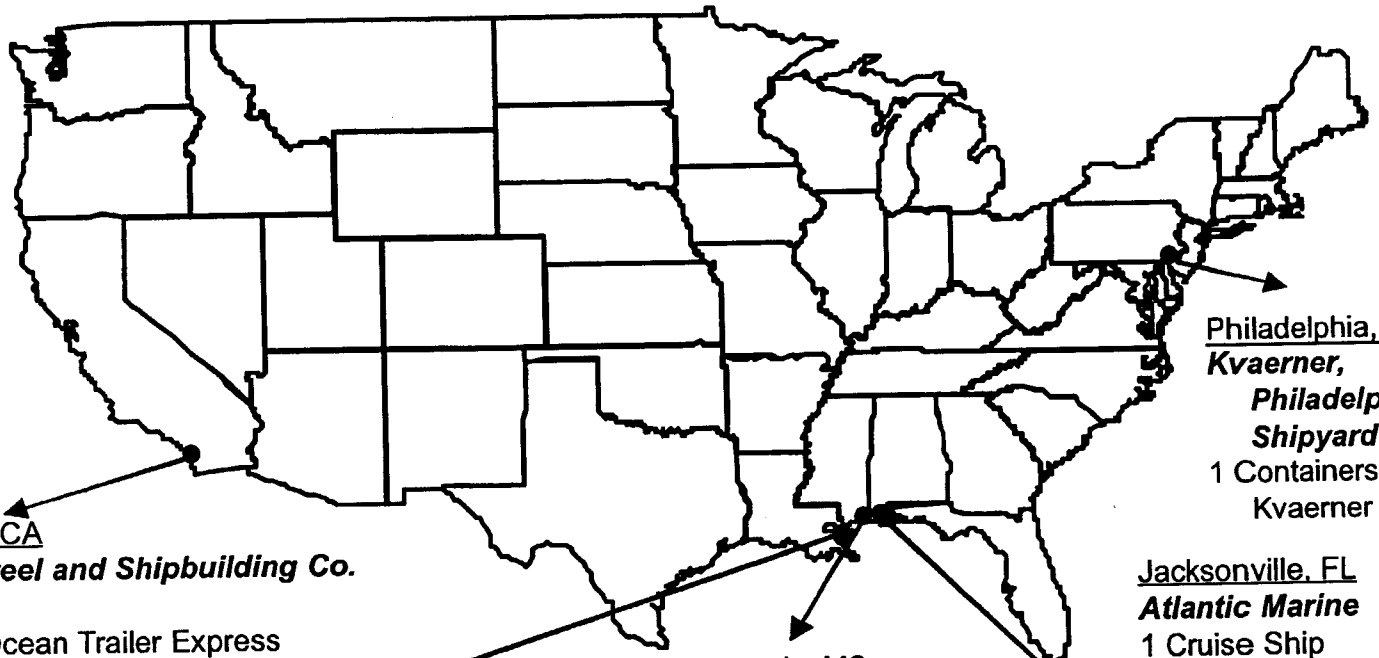
Figure 11: CAPITAL CONSTRUCTION FUND HOLDERS—September 30, 2001

Abdon Callais Boat Rentals, Inc.
ABCR Offshore, LLC
AFFCO, Incorporated
Afram Lines (USA) Co.
Al A. Gonsoulin
Alaska Riverways, Inc.
Alpha Marine Services, Inc.
A.M.C. Boats, Inc.
AMT Marine, Inc.
Amalgamated Henway, Inc.
American President Lines, Ltd.
Anderson Tug & Barge Co.
Andover Company, L.P.
Apex Marine Corporation
Aquarius Marine Company
Aries Marine Corporation
Atlas Marine Company
BP Oil Shipping Co., USA/AMI Leasing
Bigane Vessel Fueling Co.
Bisso Marine Company, Inc.
Botruc Enterprises, Inc.
Bludworth, Richard W.
Blue Lines, Inc.
Brice Incorporated
C & C Boat Rentals
C & E Boat Rentals, Inc.
Callais Enterprises, Inc.
Captain Elliott's Party Boats, Inc.
Cardinal Services, Inc.
Champion Auto Ferry, Inc.
Citicorp Industrial Credit, Inc. Clipper Navigation, Inc.
Coast-Craft, Inc.
Cook Inlet Tug & Barge Co., Inc.
Coon Brothers, Inc.
Cowan Towing & Salvage Co.
Crewboats, Inc.
Crosby Enterprises, LLC
Cross Marine, Inc.
Crowley Maritime Corp.
Cvitanovic Boat Service, Inc.
Danos & Inc.
Danos & Curole Marine Contractors, Inc.
Danos Marine, Inc.
Durocher Dock and Dredge, Inc.
Edison Chouset Offshore, Inc.
Edward E. Gillen Co.
Elevating Boats, LLC
Ensco International
Eserman Offshore Service, Inc.
Exxon Corporation
Falcon Alpha Shipping, Inc.
Falcon Capital, Inc.
Falgout Bros., Inc.
Falgout Marine, Inc.
First Island Company
Fred Devine Diving & Salvage, Inc.
G & B Marine Transportation, Inc.
GATX Corporation
General Dynamics Corp. (NASSCO)
General Electric Credit & Leasing Corporation
General Electric Credit Corp. of Delaware
General Electric Credit Corp. of Georgia
Gilco Supply Boats, Inc.
Global Industries, Ltd.
Great Lakes Towing Co.
Hone Heke Corporation
Household Commercial Financial Svcs, Inc.
Hvide Shipping, Incorp.
Iberia Crewboats & Marine Svc., Inc.
Inter-Cities Navigation
International Shipholding Corp.
Interstate Towing Co.
Island Express Boat Lines, Ltd.
Jade Marine, Inc.
Jore Group, The
Kenai Fjord Tours, Inc.
L&L Marine Service, Inc.
L&M Botruc Rental, Inc.
Laborde Marine, Ltd.
Maalaeakai Enterprises, Inc.
Matson Navigation Company, Inc.
Maybank Navigation Co., LLC
Maybank Shipping Co., Inc.
Middle Rock, Incorporated
Miller Boat Line, Inc.
Milwaukee Bulk Terminals, Inc.
Montco Offshore, Inc.
Mr. E. Phillips
New Transport Lines, Inc.
Newman Boat Line, Inc.
Nicor, Inc.
Northland Services, Inc.
Ocean Shipholdings, Inc.
Oceanic Fleet, Inc.
Oglebay Norton Company
O.L. Schmidt Barge Lines, Inc.
OMI Corp.
Otter Candies, Inc.
Otter Creek Company
Overseas Shipholding Group, Inc.
P. J. Brix, LLC.
Pacific Hawaiian Line, Inc.
Pacific Marine & Supply Co., Ltd.
Paradise Cruise, Ltd.
Phillips Petroleum Company
Proteus Company
Puget Sound Freight Lines
Rainbow Tours
Ritchie Transportation Company
Saltchuk Resources, Inc. (Totem Resources/Foss Maritime)
Sause Bros., Inc.
Sause Bros. Ocean & Towing Co., Inc.
Seabulk Tankers, Ltd.
Sea-Glo, LLC
SL Servicem Inc. (Sea-Land)
Sea-Mar, Inc.
Sea Mar Equipment, Inc.
Sea Otter, Inc.
Sea Ox, Inc.
Sea Supply, Inc.
Sheplers, Inc.
Silver Bay Loggings, Inc.
Skansi Marine, LLC
Southern States Offshore, Inc.
St. Bartholomey Corporation, The
St. Bernard Boat Rental, Inc.
Stan Stephens Charters, Inc.
State Boat Corp.
Steel Style Marine, Inc.
Steel Style Marine of Florida
TMT Corporation
Titus, Inc.
Tobias, Inc.
Total Transportation, Inc.
United Marine Holdings, LLC
United Tugs, Inc.
Van Ommeren Shipping (USA) LLC
Verizon Capital Corp./Trident Marine Trust
Washington Island Ferry Line, Inc.
WFC, Inc.
Wilmington Trust Co./Bell Atlantic
TriCon Leasing Co.
Windjammer Cruises, Inc.
Wolf, Inc.
Y & S Marine, Inc.
Zidell Corp.
Zita Corporation

Figure 12: CONSTRUCTION RESERVE FUND HOLDERS—September 30, 2001

Anna Offshore, Inc.	Graham Boats, Inc.	Seacor Ocean Support Services, Inc.
Arthur Levy Enterprises, Inc.	Graham Offshore, Inc.	Seacor Offshore, Inc.
P.J. Brix, LLC	McCall Marine Services, Inc.	Seacor Supply Ships Assoc., Inc.
Cenac Towing Co., Inc.	Pacific Hawaiian Line, Inc.	Seacor Worldwide, Inc.
Central Gulf Steamship Corp.	Sause Bros. Ocean Towing Co., Inc.	Serodino, Inc.
Crowley Launch and Tugboat Co.	Seacor Marine, Inc.	Shadow Draft Elevating Boats, Inc.
Foss Maritime Company	Seacor Marine International, Inc.	

Figure 13: COMMERCIAL SHIPBUILDING ORDERBOOK
(1,000 GT AND OVER)
SEPTEMBER 30, 2001



San Diego, CA
National Steel and Shipbuilding Co.
2 RO/RO's-
Totem Ocean Trailer Express
4 Tankers-
British Petroleum

New Orleans, LA
Litton, Avondale
4 Crude Carriers -
Polar Tankers

Pascagoula, MS
Litton, Ingalls
2 Passenger Cruise Ships -
American Classic Cruises
Halter Marine, Pascagoula
2 Car/Truck Carriers -
Pasha Hawaii Transport

Mobile, AL
Bender Shipbuilding
2 Containerships
Santa Maria Shipping

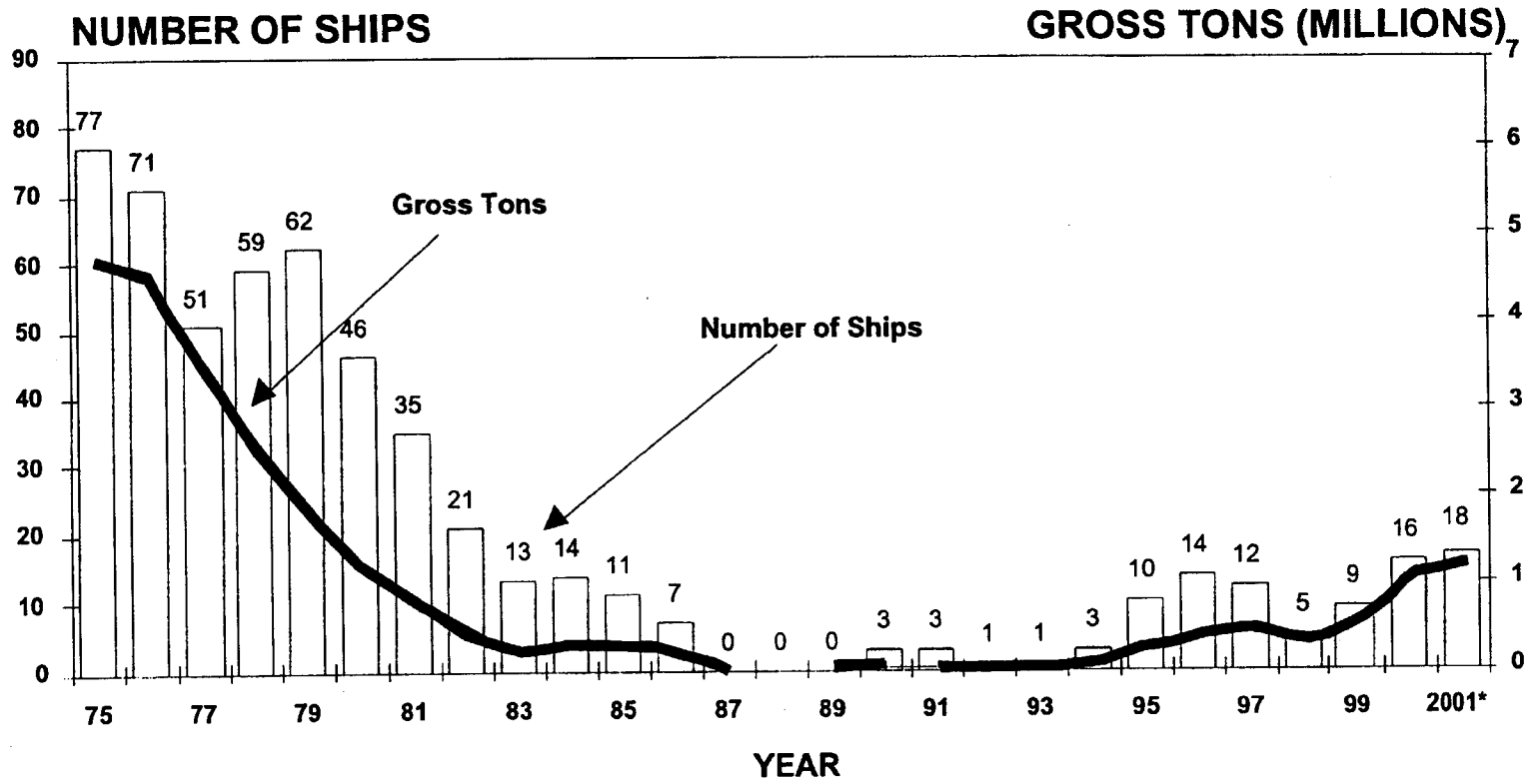
Jacksonville, FL
Atlantic Marine
1 Cruise Ship

Philadelphia, PA
Kvaerner, Philadelphia Shipyard
1 Containership -
Kvaerner

Figure 14: COMMERCIAL SHIPBUILDING ORDERBOOK HISTORY

(AS OF DECEMBER 31)

SHIPS OF 1,000 GROSS TONS AND OVER



* Data as of September 30, 2001

Figure 15: CAPITAL INVESTMENTS
U.S. SHIPBUILDING AND REPAIR INDUSTRY